Inverter

Powerstocc® Master Control V2.0

Manual

PS 3.0 Excellent
PS 3.6 Excellent
PS 4.2 Excellent
PS 5.5 Excellent
PS 8.3 Excellent
PS 10.1 Excellent

LEGAL NOTICE

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1 Notes on this manual

Read this manual carefully in its entirety. It contains important information on installing using the Powerstocc Master Control V2.0 software.

Target group

This manual is intended for operators of photovoltaic plants with Powerstocc Excellent-type string inverters.

Typographical conventions

The following typographical conventions are used in this manual:

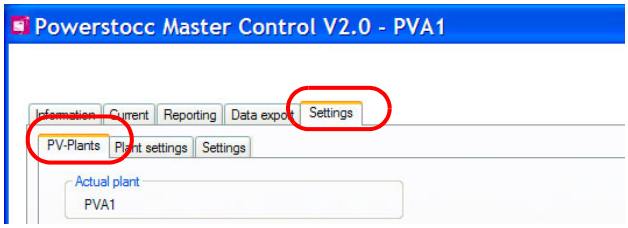
— Lists are marked with a dash.

1. Actions are numbered.

➙ This arrow indicates the result of an action.

Words printed in bold are terms found in the Powerstocc Master Control V2.0 user interface.

The user interface is divided into tabs. Each tab can contain additional (sub)tabs. If you are instructed, for instance, to go to the **Settings | PV Plants** tab, *first* click the **Settings** tab and *then* click the **PV Plants** tab in it.



2 Proper use

Powerstocc Master Control V2.0 (in short: PMC2) is a program for collecting, storing and displaying the log data from Powerstocc Excellent inverters.

Exclusion of liability

Any use that differs from or goes beyond the stated intended purpose is considered inappropriate. The manufacturer accepts no liability for any damage resulting from this.

3 Powerstocc Master Control V2.0

3.1 Validity of the manual

This manual applies to Powerstocc Master Control V2.0 starting from version number 1.0.2.0.

3.2 Functions

Powerstocc Master Control V2.0 (in short: PMC2) can graphically display and evaluate the performance and yield data of your photovoltaic plant. To do this, PMC2 downloads the log data saved in the inverter and evaluates it.

PMC2 is not designed for the administration of photovoltaic plants, which means that PMC2 cannot alter any operating settings in the inverter.

Restrictions

It is not possible to retrieve log data via the RS485 interface. Neither is it possible to retrieve the data via a proxy server. These functions will only be available in future versions of PMC2.

PMC2 uses TCP ports 80 and 81 to communicate with the inverter. These ports may not be blocked by a firewall.

PMC2 uses NetBIOS to resolve names. If NetBIOS is not available, the inverter can only be contacted using its IP address, but not using its name or serial number.

3.3 System requirements

— Computer with Microsoft Windows XP or Windows Vista

— Ethernet standard network port with TCP/IP protocol

— At least 2.9 MB of free hard drive space

— Administrator rights for installation on certain Windows versions

— Microsoft .NET Framework 3.5 installed.
You can download this for free from the Microsoft website.

Microsoft lists the following requirements for installing .NET Framework 3.5:

— Operating system: Windows XP, Windows Vista, Windows Server 2003, Windows Server 2008

— Processor: at least 400-MHz Pentium or equivalent; recommended 1-GHz Pentium or equivalent

— RAM: at least 96 MB, recommended 256 MB

— Hard drive: up to 500 MB of free hard drive space

— Screen: 800×600 resolution with 256 colours, recommended 1024×768 and 32-bit colour

— Administrator rights for installation

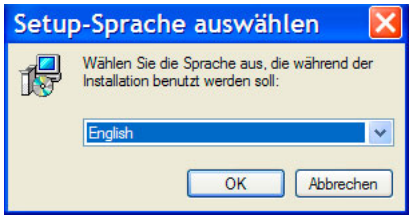
4 Connecting the computer to the inverter

PMC2 must be able to establish a network connection between the computer it is installed on and the inverter of the photovoltaic plant. If there are several inverters in the plant, there must be a network connection to all of them. You can find all the necessary information in the assembly and operation manual of the inverter.

5 Installation

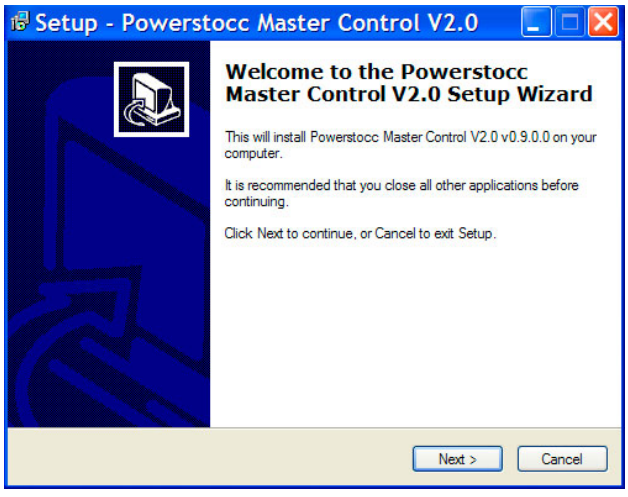
On some versions of Windows you need administrator rights to install PMC2.

1. Install Microsoft .NET Framework 3.5 if you have not already done so.
2. Run the installation program for PMC2.

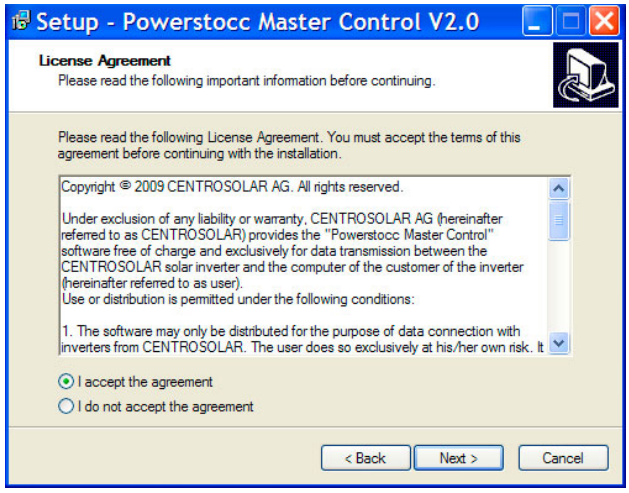


3. Select a language and click **OK**.

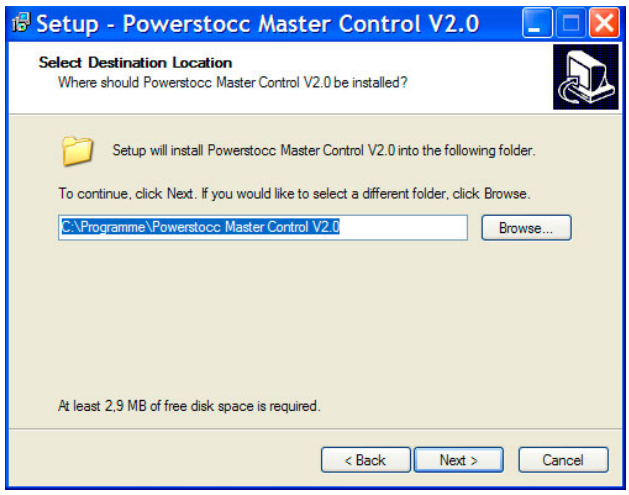
   Note: This is only the language for the installation program. You can change the language of the Powerstocc Master Control V2.0 user interface after you have installed it.


Setup - Powerstocc Master Control V2.0
Welcome to the Powerstocc Master Control V2.0 Setup Wizard
This will install Powerstocc Master Control V2.0 v0.9.0.0 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

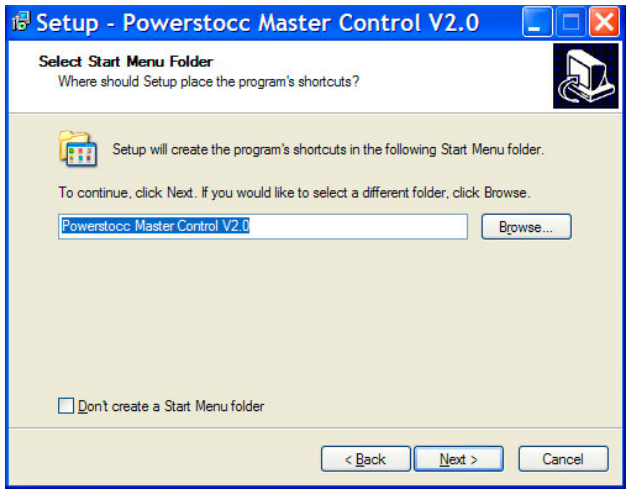
4. Click **Next**.


Setup - Powerstocc Master Control V2.0
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
Copyright © 2009 CENTROSOLAR AG. All rights reserved.
Under exclusion of any liability or warranty, CENTROSOLAR AG (hereinafter referred to as CENTROSOLAR) provides the "Powerstocc Master Control" software free of charge and exclusively for data transmission between the CENTROSOLAR solar inverter and the computer of the customer of the inverter (hereinafter referred to as user).
Use or distribution is permitted under the following conditions:
1. The software may only be distributed for the purpose of data connection with inverters from CENTROSOLAR. The user does so exclusively at his/her own risk. It
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

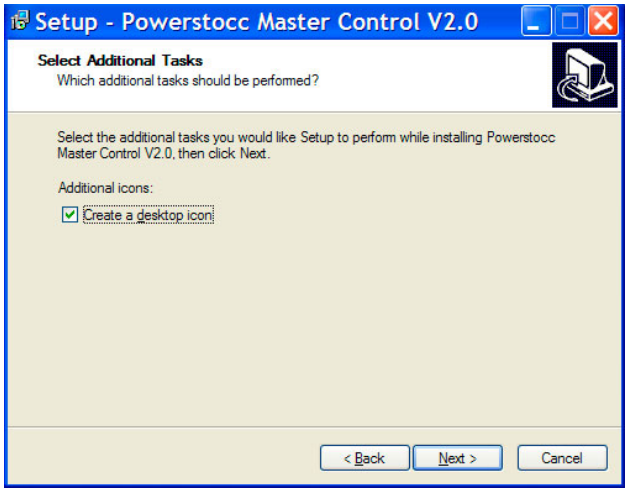
5. Accept the license agreement and click **Next**.


Setup - Powerstocc Master Control V2.0
Select Destination Location
Where should Powerstocc Master Control V2.0 be installed?
Setup will install Powerstocc Master Control V2.0 into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Programme\Powerstocc Master Control V2.0
Browse...
At least 2,9 MB of free disk space is required.
< Back
Next >
Cancel

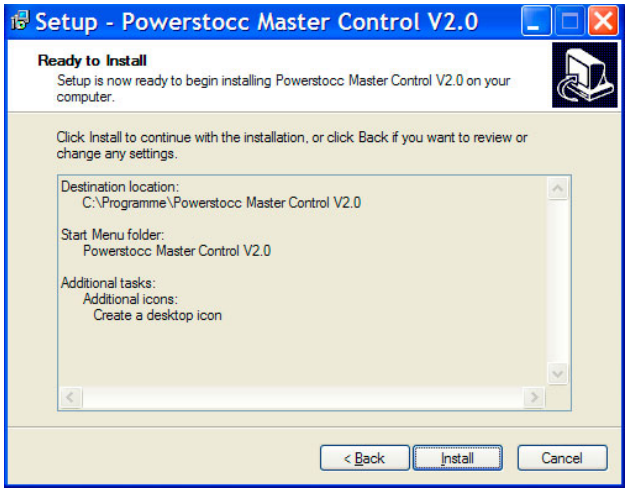
6. Select the installation folder for PMC2 and click **Next**.


Setup - Powerstocc Master Control V2.0
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
Powerstocc Master Control V2.0
Browse...
Don't create a Start Menu folder
< Back
Next >
Cancel

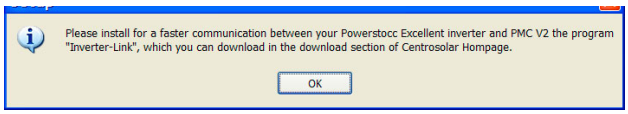
7. Select the start menu folder for PMC2. If you do *not* want the setup program to make an entry in the start menu, select the corresponding checkbox. Click **Next**.


Setup - Powerstocc Master Control V2.0
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing Powerstocc Master Control V2.0, then click Next.
Additional icons:
Create a desktop icon
< Back
Next >
Cancel

8. If you do not want the setup program to create a desktop icon, unselect the checkbox.
   Click **Next**.

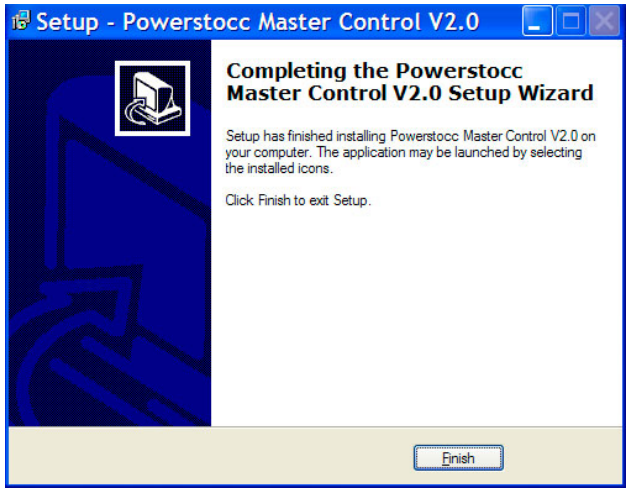

Setup - Powerstocc Master Control V2.0
Ready to Install
Setup is now ready to begin installing Powerstocc Master Control V2.0 on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Programme\Powerstocc Master Control V2.0
Start Menu folder:
Powerstocc Master Control V2.0
Additional tasks:
Additional icons:
Create a desktop icon
< Back
Install
Cancel

9. Click **Install**.
   ➙ PMC2 is installed.


Please install for a faster communication between your Powerstocc Excellent inverter and PMC V2 the program "Inverter-Link", which you can download in the download section of Centrosolar Hompage.
OK

   To speed up the transfer of data between Powerstocc Master Control V2.0 and the inverter, you can install the free Inverter-Link software. You can find more information in the Downloads section of our website <www.centrosolar.com>.

10. Click **OK**.


Setup - Powerstocc Master Control V2.0
Completing the Powerstocc Master Control V2.0 Setup Wizard
Setup has finished installing Powerstocc Master Control V2.0 on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Finish

➙ Powerstocc Master Control V2.0 is now installed.

6 First steps

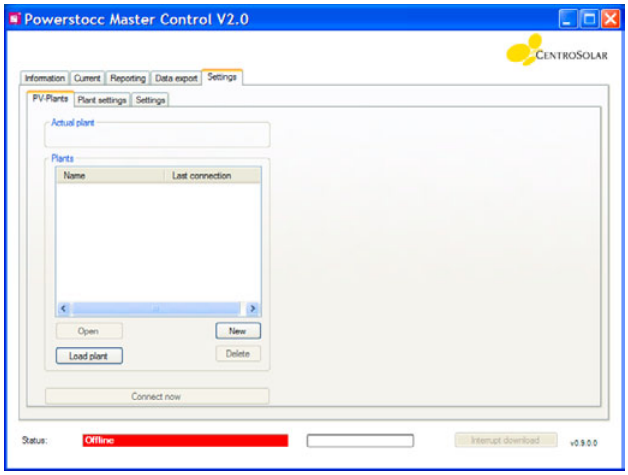
This first chapter tells you how to start PMC2 and use the wizard to create a plant.

If you do not want to use the wizard, you can set up your plant manually (see section 7.1 on page 9) or load an existing plant that has been saved (see section 7.4 on page 10).

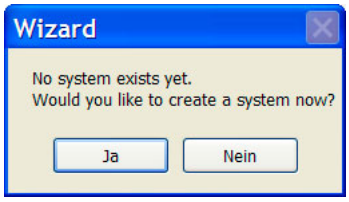
Starting the program and creating the plant using the wizard

Note: You do not need administrator rights to use PMC2.

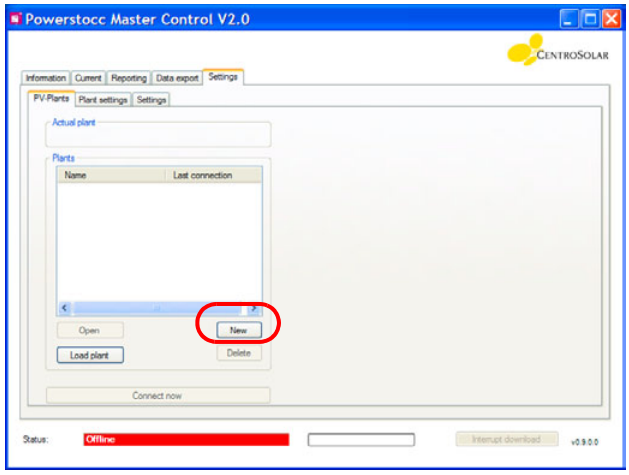
1. Select Powerstocc Master Control V2.0 from the start menu or double-click the PowerstoccMasterControl2.exe file in the installation folder.
   ➙ PMC2 is started.



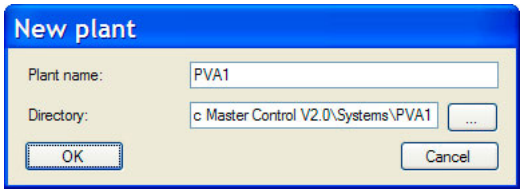
   ➙ The wizard appears:



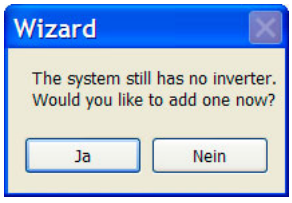
2. Click **Yes** to create a plant using the wizard.
   If you click **No**, the wizard is closed.
   ➙ PMC2 changes to the plant overview.



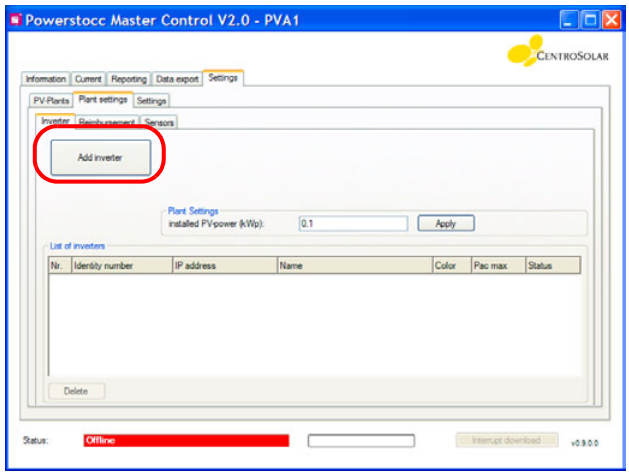
3. Click **New**.
   ➙ The **New plant** window appears.



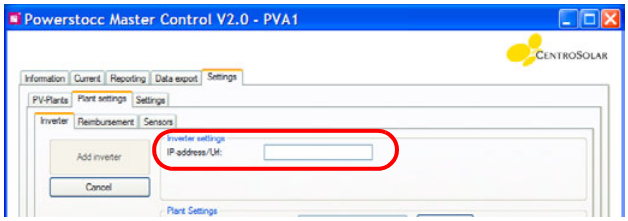
4. Enter a name or the plant and select a location for storing the plant data.
   Click **OK**.
   ➙ The wizard appears:



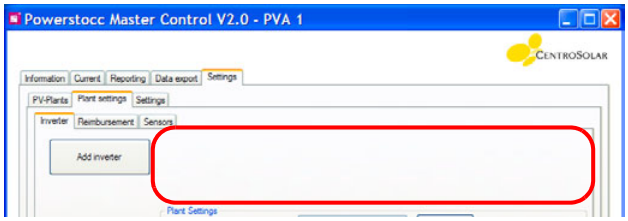
5. Click **Yes** to add an inverter using the wizard.
   If you click **No**, the wizard is closed.
   ➙ PMC2 changes to the **Settings | Plant settings | Inverter** tab.



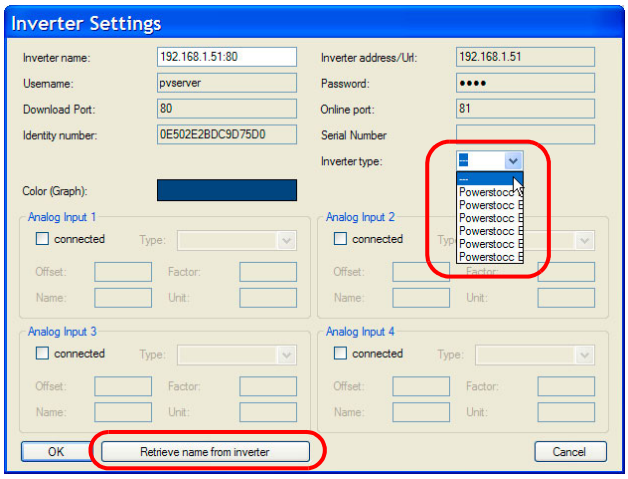
6. Click **Add inverter**.
   ➙ An input box appears.



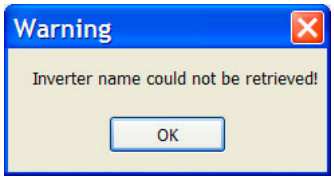
7. Enter the IP address, URL, name or serial number of the inverter.
   Note: The IP address and the name are shown on the display of the inverter, while the serial number is on the type plate (see the assembly and operating manual).
   A URL may not end in a slash (/).
   ➙ A soon as you enter something, more input boxes appear.



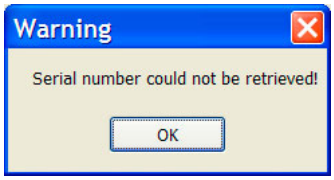
8. The input boxes contain default values. Enter your own values if the settings of your plant are different from the defaults (see table 1 on page 11).
9. Click **Apply**.
   ➙ The **Inverter settings** window appears.



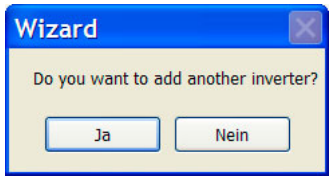
10. Select the **Inverter type** from the drop-down list.
11. If you click **Retrieve name from inverter**, PMC2 attempts to contact the inverter in order to read its name and serial number.
    ➙ If it cannot retrieve the name, the following message appears:



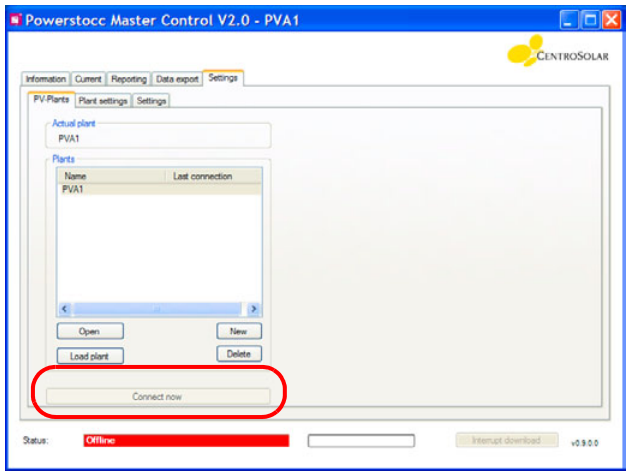
    ➙ If it cannot retrieve the serial number, the following message appears:



    For possible causes see ‹Troubleshooting› starting on page 25.
    Note: In most cases, it is not essential for the inverter name and serial number to be identified in order to use PMC2.
12. Click **OK** in the **Inverter settings** window.
    ➙ The inverter is now added to your plant.
    ➙ The wizard appears:



13. Click **Yes** to add another inverter (see step 6).
    If you click **No**, the creation of the plant is completed.
    ➙ The following window appears:

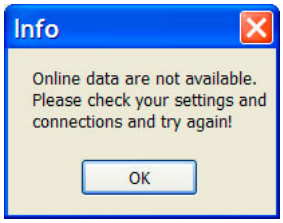


14. Click **Connect now**.
    ➙ PMC2 attempts to connect to the plant: it downloads the log data, saves it, checks if the plant is available and goes online.

Note: It can take some time to download the data, especially the first time or if the data has not been retrieved for a while.
You can click **Interrupt download** to stop the data transfer and resume it later.

No connection

➙ If the following message appears, the online data is not available. For more information see section 8 on page 16.



➙ If the following message appears, PMC2 cannot establish a connection. For information on trouble-shooting and remedies see section 14 starting on page 25.

What next?

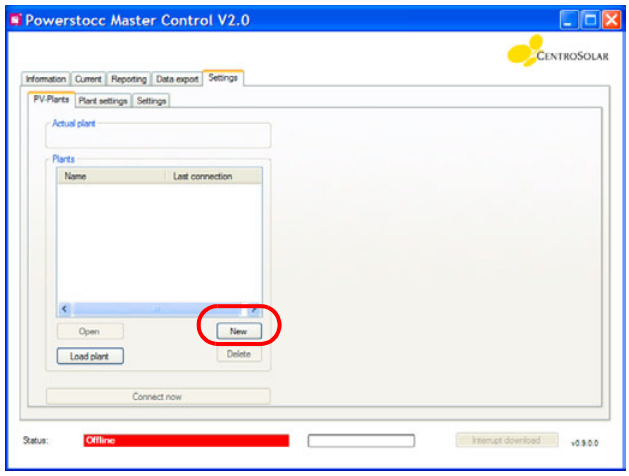
You can, for example:

- Make detailed settings (reimbursement information, sensors, total output, plant diagram) for the plant (see section 7 starting on page 9)
- View the current output of your plant (see section 10 starting on page 19)
- View the log data (see section 11 starting on page 20) or export it (see section 12 starting on page 21)
- Create more plants

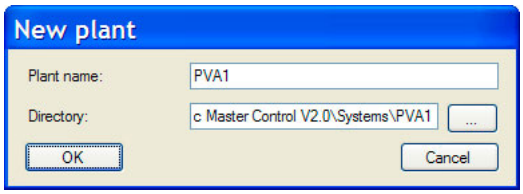
7 Creating and setting up a plant

7.1 Creating a new plant

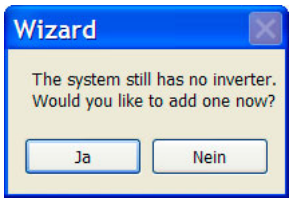
1. Go to the **Settings | PV plants** tab.



2. Click **New**.
   ➙ The **New plant** window appears.



3. Enter a name for the new plant.
   By default, PMC2 creates a folder with the plant name. You can also select a different folder.
4. Click **OK**.
   ➙ The plant is now created.
   ➙ The wizard appears:

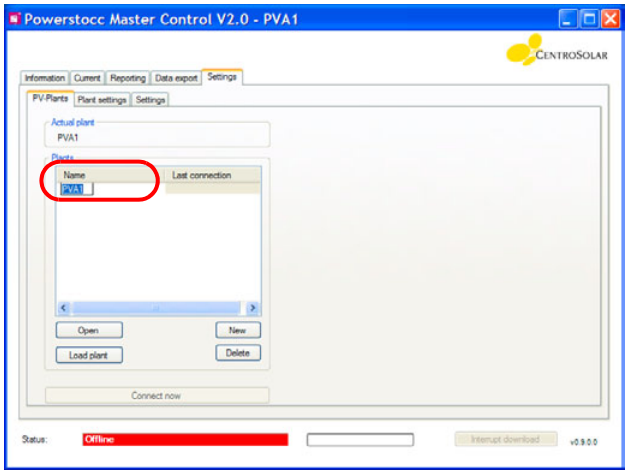


5. Click **Yes** to add an inverter using the wizard.
   If you click **No**, the wizard is closed.

7.2 Renaming a plant

You can change the name of a plant. Renaming only changes the name displayed in PMC2. The folder and the files containing the plant data retain their original names.

1. Go to the **Settings | PV plants** tab.
2. Click the plant name once and then again (do not double-click, as this would activate the plant, see section 7.5 on page 10).
   ➙ You can edit the name of the plant.

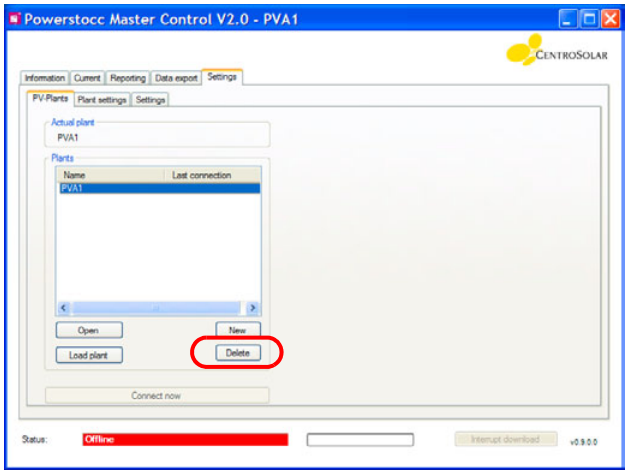


3. Enter a new plant name and press the Enter key. Note: To cancel the process and keep the old name, press the Esc key.
   ➙ The plant is now renamed.

7.3 Deleting a plant

You can delete an existing plant. When you do this, the folder containing the plant data and all the log data saved in it is deleted. This process cannot be reversed.

1. Go to the **Settings | PV plants** tab.
2. Highlight the plant to be deleted and click **Delete**.

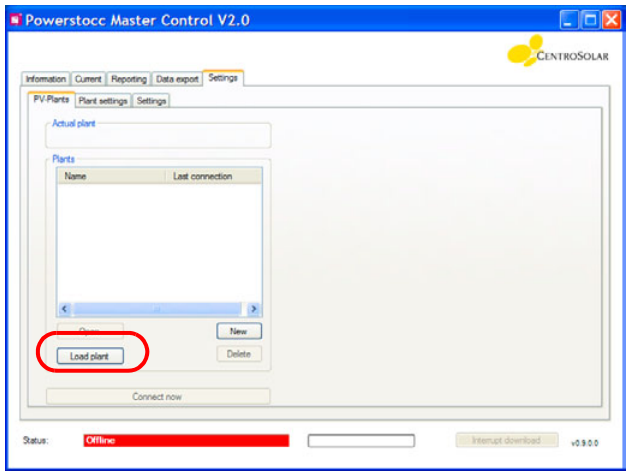


   ➙ The plant is deleted along with all its operating data.
   ➙ If you have deleted the active plant, the next plant in the list is automatically activated.
   ➙ If there are no more plants in the list after you have deleted one, the wizard for adding a plant appears (see section on page 7).

7.4 Loading a plant

You can import (load) the settings and data for a plant. You might want to do this if you are using PMC2 on more than one computer or if you want to swap your data with friends.

1. Go to the **Settings | PV plants** tab.



2. Click **Load plant**.
   ➙ A file selection window is opened.
3. Highlight the plant file that you want and click **Open**.
   ➙ The plant settings are loaded. PMC2 automatically attempts to connect to the plant.

7.5 Activating a plant

You can create and manage multiple plants in PMC2. However, only *one* plant can be active at a time. In other words, you cannot retrieve and view data from more than one plant *at the same time*.

Settings and evaluations can only be made for the plant which is currently active.

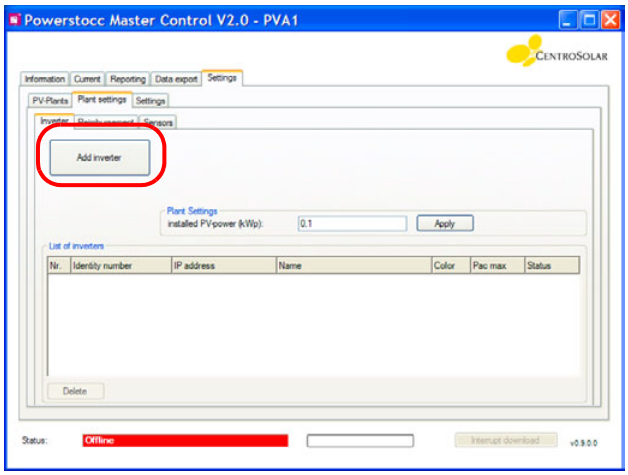
The name of the active plant is shown in the title bar and on the **Information** and **Settings | PV plants** tabs.

1. Go to the **Settings | PV plants** tab.
2. Double-click on the plant to be activated.
   ➙ The plant is activated and PMC2 attempts to make a connection.

7.6 Adding an inverter

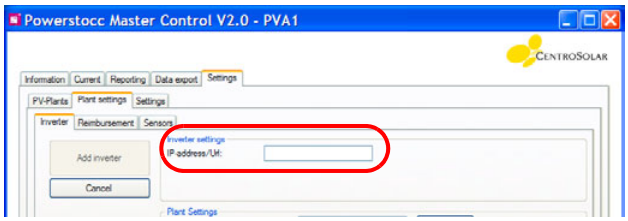
You can add inverters to the active plant. There is no limit to the number of inverters per plant. However, to avoid excessive complexity, we recommend a maximum of 20 inverters per plant (see section 9 starting on page 18).

1. Go to the **Settings | Plant settings | Inverter** tab.



2. Click **Add inverter**.

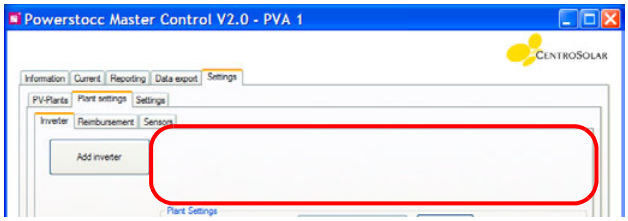
   ➙ An input box appears:



3. Enter the IP address, URL, name or serial number of the inverter in the **IP address/URL** box.

   Note: The IP address and the name are shown on the display of the inverter, (see the assembly and operating manual).
   A URL may not end in a slash (/).

   ➙ A soon as you enter something, more input boxes appear.



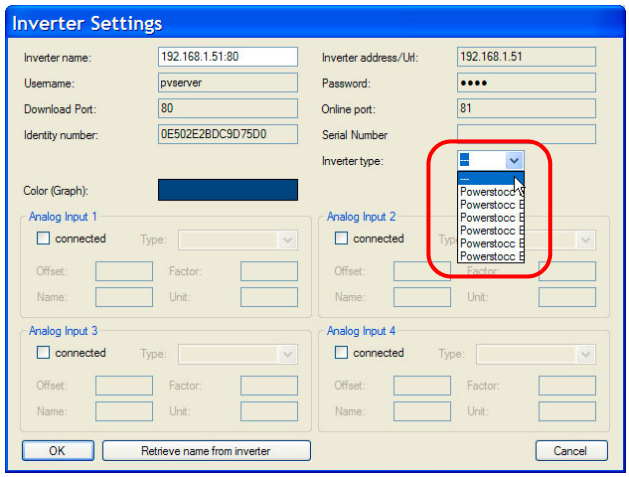
4. The input boxes contain default values. Enter your own values if the settings of your plant are different from the defaults.

Inverter settings	
IP address/URL	IP address, URL or name of the inverter. Enter the URL, making sure it does not end with a slash (/).
Download port	PMC2 uses this port to retrieve and transfer the log data. The default is 80.
Online port	PMC2 uses this port to retrieve the current performance data. The default is 81.
User name Password	User name and password for logging into the inverter. The factory setting for each inverter is the user name *pvserver* and the password *pvwr*.

Table 1: *Inverter settings*

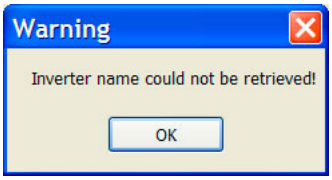
5. Click **Apply**.

   ➙ The **Inverter settings** window appears. You can make other settings here.

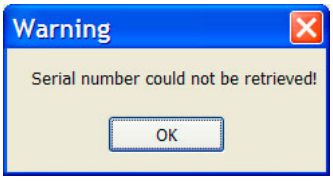


6. Select the **Inverter type** from the drop-down list. This setting is for information only. It has no effect on the function.
7. Assign the inverter a colour.
   The inverter is shown in this colour in the diagrams on the **Current** and **Evaluation** tabs.
8. If you click **Retrieve name from inverter**, PMC2 attempts to contact the inverter in order to read its name and serial number.

   ➙ If it cannot retrieve the name, the following window appears:



   ➙ If it cannot retrieve the serial number, the following window appears:



For possible causes see ‹Troubleshooting› starting on page 25.

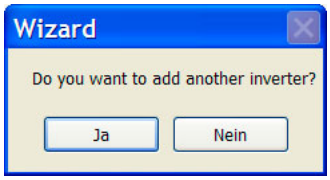
Note: In most cases, it is not essential for the inverter name and serial number to be identified in order to use PMC2.

9. Define the sensors which are connected to the inverter. To do this, enable the **Connected** check-box of the analogue input and enter the necessary values (see table 2).
   Note: PMC2 can display the readings from up to three sensors during evaluation and data export.

Analogue input settings	
Type	Sensor type: irradiation, temperature or self-defined.
Offset	Zero point adjustment value for the connected sensor, see the operating manual for the sensor.
Factor	Scaling adjustment value for the connected sensor, see the operating manual for the sensor.
Name	Displayed name of the sensor
Unit	Units for the value which the sensor measures: for a temperature sensor, for example, degrees Celsius (°C).

Table 2: *Analogue input settings*

10. Click **OK**.
    ➙ The inverter has now been added.
    ➙ The window is closed and the wizard appears:



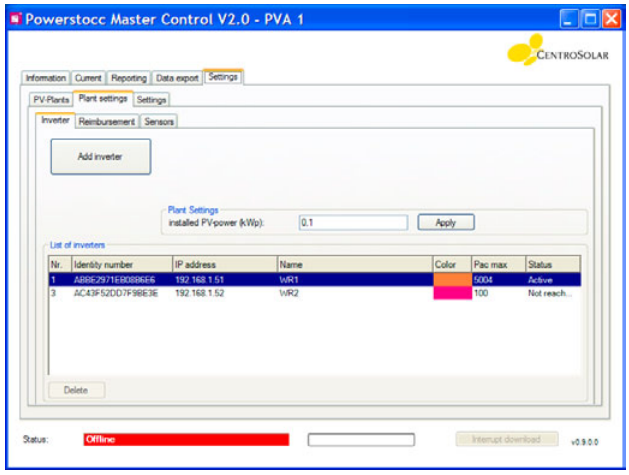
➙ Click **Yes** to add another inverter (see step 3).
If you select **No**, PMC2 changes to the **Settings | PV plants** tab.

7.7 Changing inverter settings

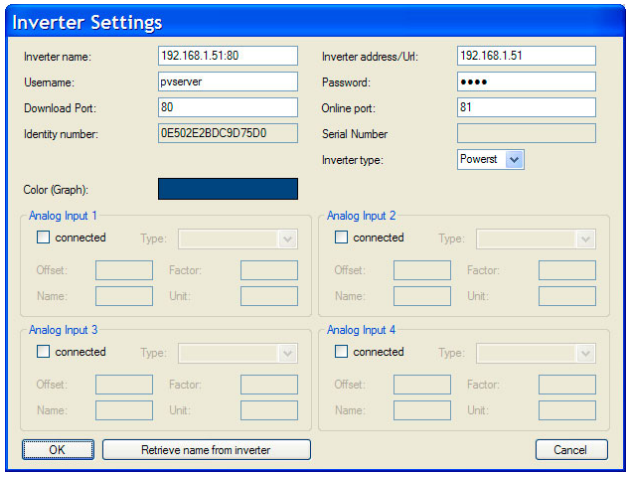
You can change the inverter settings for a plant.

Note: You can only change the settings of *active* plant (see section 7.5 on page 10) and only when its status is offline.

1. Go to the **Settings | Plant settings | Inverter** tab.



2. Double-click an entry in the list of inverters.
   ➙ The **Inverter settings** window appears.

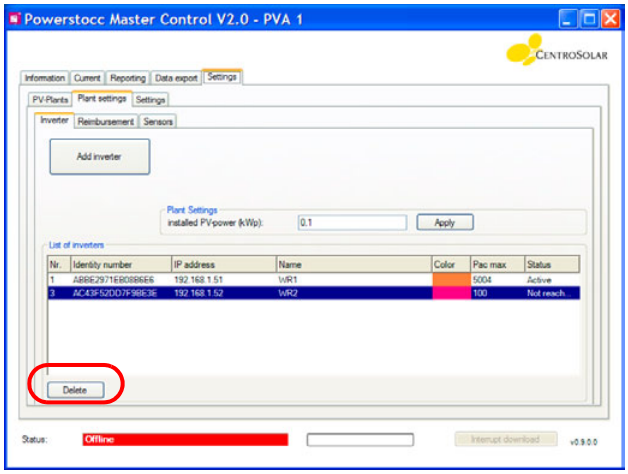


3. Change the settings as required (see section 7.6 on page 11).
4. Click **OK** to save the settings.

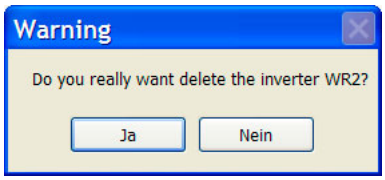
7.8 Deleting an inverter

You can delete an inverter from the plant. When you delete an inverter, all its log data is deleted. PMC2 cannot restore deleted data.

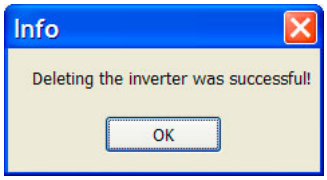
1. Go to the **Settings | Plant settings | Inverter** tab.



2. Click the inverter you want to delete in the list and select **Delete**.
   ➙ A window appears:



3. Click **Yes**.
   ➙ The inverter is deleted.
   ➙ A window appears:

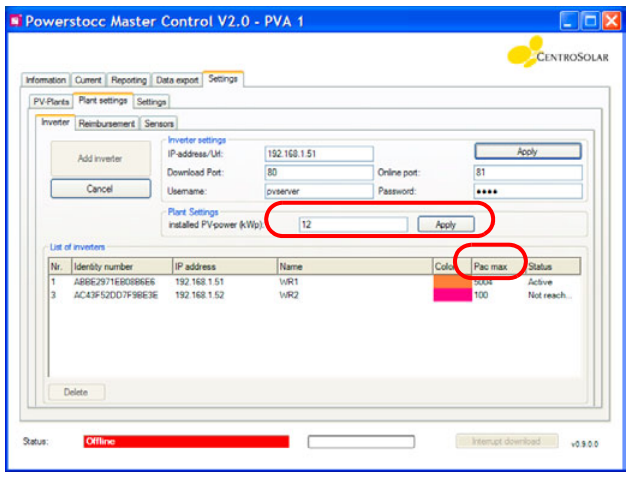


4. Click **OK**.

7.9 Setting the total power of the plant

For a clearer evaluation, you can enter the total installed power of the plant.

1. Go to the **Settings | Plant settings | Inverter** tab.



2. Enter the total power of the plant in the **Installed PV power** field.
3. Click **Apply** to save the settings.

Note: The maximum AC power (Pac max) of each inverter is displayed in the list of inverters under Pac max.

7.10 Setting the reimbursement

You can set the reimbursement you receive from the grid operator for each kilowatt hour the plant supplies.

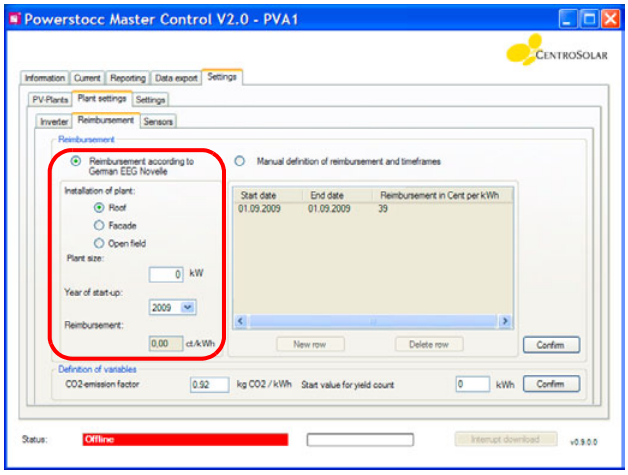
If your grid operator pays you for the electricity according to the minimum rates of the German renewable energy act (EEG), PMC2 uses the plant parameters (installation type, output, year of commissioning) to select the reimbursement rates specified in the EEG amendment of 1 January 2009.

If your grid operator has other reimbursement rates or if your plant is not in Germany, you can enter your own reimbursement rates and periods.

Your entries are not checked for validity or plausibility. Note that the reimbursement calculated and displayed by PMC2 is for reference only. It does not amount to any legal entitlement.

Reimbursement according to EEG amendment

1. Go to the **Settings | Plant settings | Reimbursement** tab.



2. Select **Reimbursement according to German EEG Novelle** and set the plant parameters.

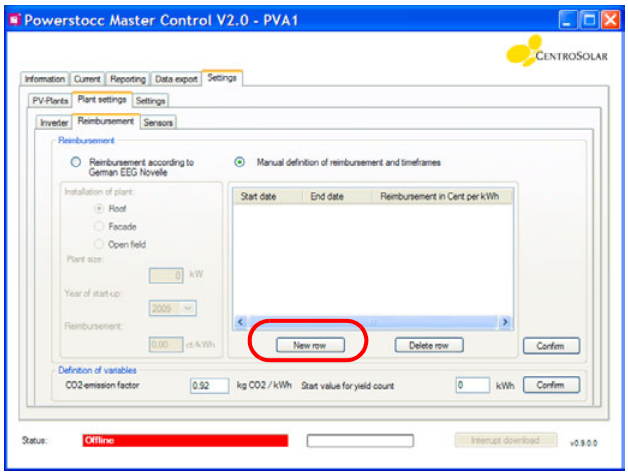
Setting reimbursement according to EEG	
Installation of plant	The installation type of the plant: roof, facade or open field.
Plant size	The maximum plant output in kilowatts (kW).
Year of start-up	The year in which the plant entered operation.
Reimbursement	The EEG reimbursement rate according to the above plant data. This field is for information only and cannot be edited.

Table 3: *Setting reimbursement according to EEG*

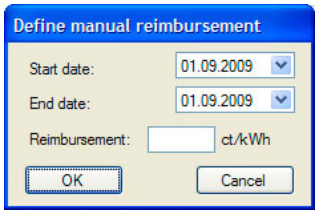
3. Click **Apply** to save the settings.

Defining reimbursement rates and periods yourself

1. Go to the **Settings | Plant settings | Reimbursement** tab.
2. Select **Manual definition of reimbursement and timeframes** and click **New row**.

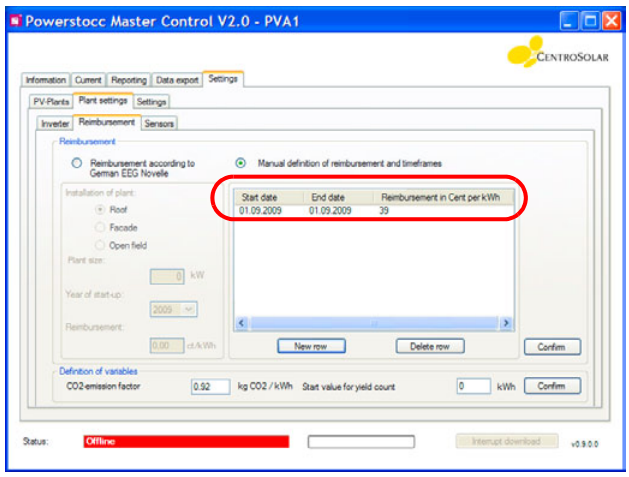


➞ A new window appears.



3. Select a start and end date and enter a reimbursement rate. Click **OK**.

➞ The reimbursement period is added.



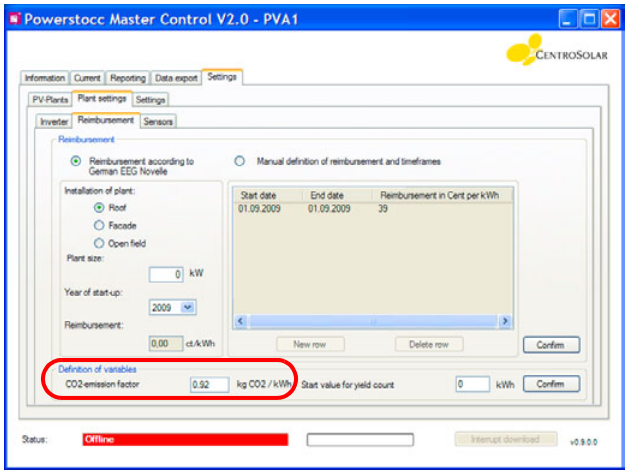
You can add more reimbursement periods, provided they do not overlap.
You can edit reimbursement periods (by double-clicking the entry) or delete them (by clicking **Delete row**).

4. Click **Apply** to save the settings.

7.11 Setting the CO_2 emission factor

On the **Reporting** tab, PMC2 can show how much carbon dioxide (CO_2) your plant has saved due to the amount of power it has supplied. The exact quantity of CO_2 emissions saved per kilowatt hour of photovoltaic power varies. Therefore, you can change the default CO_2 emission factor (0.92 kg CO_2/kWh).

1. Go to the **Settings | Plant settings | Reimbursement** tab.
2. Enter the required value in the **CO_2 emission factor** field.

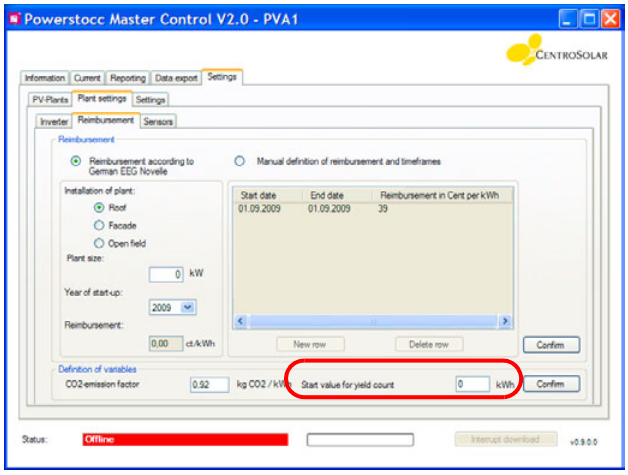


3. Click **Apply** to save the settings.

7.12 Setting the start value of the yield counter

You can set the yield counter of PMC2 to a different start value. You might want to do this, for instance, to take into account energy yields that accrued before you started using PMC2.

1. Go to the **Settings | Plant settings | Reimbursement** tab.
2. Enter the required value in the **Start value for yield count** field.



3. Click **Apply** to save the settings.

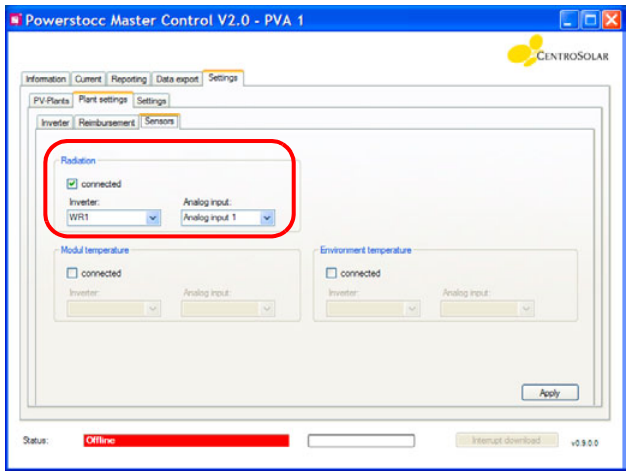
7.13 Setting sensors

PMC2 can take the readings from up to three sensors into account. The readings can then be displayed on the **Reporting** tab as additional parameters in the diagram.

1. Go to the **Settings | Plant settings | Sensors** tab.

If you get the message that no sensors are available, you must first make the appropriate settings for the inverter which the sensors are connected to (see section 7.6 on page 11).

2. Enable the **Connected** checkbox for the required sensor type.
3. Set the **Inverter** and the **Analogue input** which the sensor is connected to.



4. Click **Apply** to save the settings.

8 Connecting

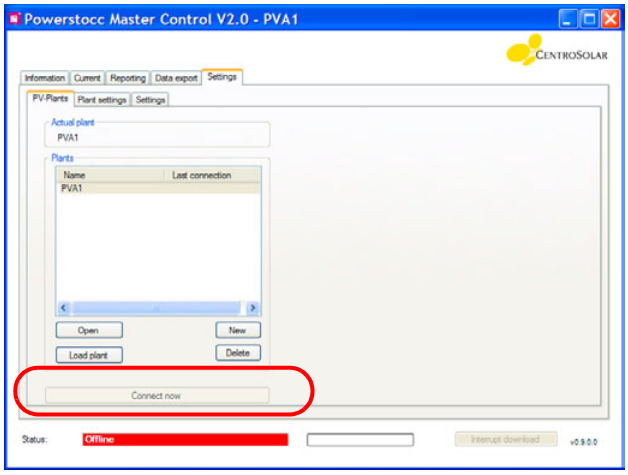
In certain situations, PMC2 automatically connects to the plant:

— When you have activated the plant.

— When you have loaded a plant (provided inverters have been created in the plant).

This is what to do in other situations:

1. Go to the **Settings | PV plants** tab.
2. Click **Connect now**.



If the **Connect now** button is disabled, it may be because no inverters have been created in the plant yet. First create an inverter (see section 7.6 on page 11).

Each connection attempt takes place as follows:

— PMC2 attempts to establish a connection to the inverters in the plant (**status: connecting**).

— As soon as the connection has been made, PMC2 downloads the log data of the inverter that has accrued since the last time (**status: downloading data**) and saves it (**status: adding data records**).

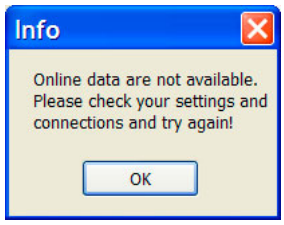
Note: It can take some time to download the data, especially the first time or if the data has not been retrieved for a while.
You can click **Interrupt download** to stop the data transfer and resume it later.

To speed up the transfer of data between Powerstocc Master Control V2.0 and the inverter, you can install the free Inverter-Link software. You can find more information in the Downloads section of our website <www.centrosolar.com>

— PMC2 then checks whether the current plant data can be retrieved (**status: checking online availability**).

— If it can, PMC2 changes to **online** status and queries the current data approximately every 5 seconds (**status: updating values**)

— If the current data cannot be retrieved, PMC2 switches to **offline** status.

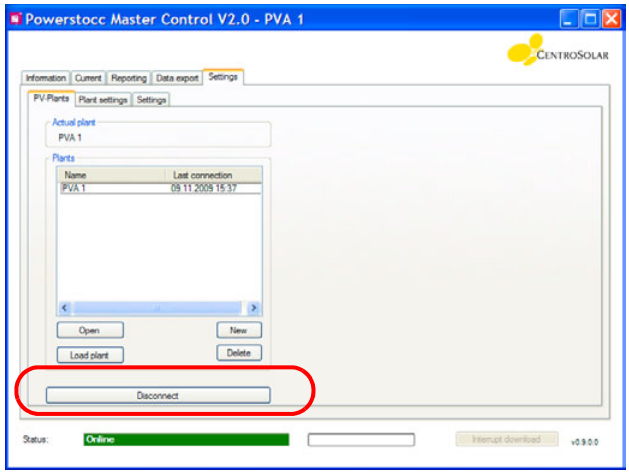


— If no connection can be made, PMC2 stops the connection attempt. For information on trouble-shooting and remedies see section 14 starting on page 25.

Note: For an overview of the status displays and what they mean see section 8.2 on page 17.

8.1 Disconnecting

1. Go to the **Settings | PV plants** tab.

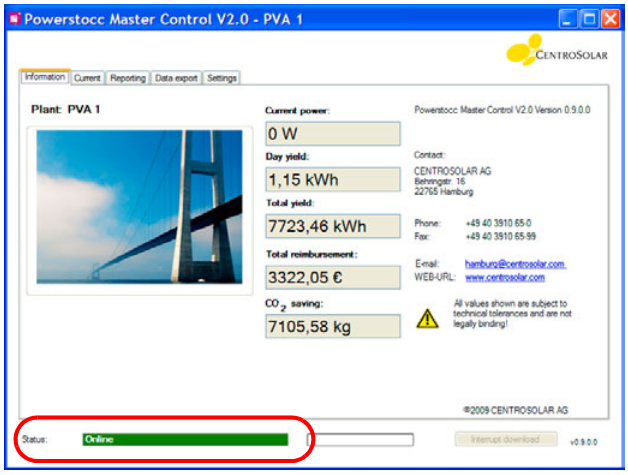


2. Click **Disconnect**.

   ➙ The connection is discontinued and **offline** appears in the status field.

8.2 Status display

PMC2 shows the current connection status in the status field.



Text	Background	Meaning
Offline	Red	There is no connection to the plant or inverter.
Connecting	Grey	PMC2 is attempting to connect to the plant.
Data download	Red	PMC2 is downloading the log data stored on the inverter.
Adding data records	Yellow	PMC2 is saving the new log data it has downloaded.
Checking online availability	Red	PMC2 is checking whether online data is available.
Online	Green	PMC2 is online, i.e. there is a connection to the plant.
Updating values	Light green	PMC2 is loading the current online data from the inverter.

Table 4: *List of all status displays*

9 Overview of plant information

1 *Name and picture of the active plant.*
2 *Overview of the main plant data. In offline status and if not all the plant's inverters are contactable, no values are displayed (offline).*
3 *Our contact information.*

Changing the plant picture

The default picture of the plant is the info.jpg file in the \img subfolder of the PMC2 installation folder.

To change the plant picture, you can either replace info.jpg or select another file to be shown instead.

The file must be in JPEG, GIF or PNG format.

1. Double-click the picture or the rectangular area below the plant name.
   → A dialogue appears for opening a file.
2. Select the file that you want and click **Open**.
   → The selected picture is displayed.

Note: The program simply creates a link to the file. If you delete the file or move it to a different folder, PMC2 will no longer find it. In this case, the standard image info.jpg is loaded. If info.jpg does not exist, PMC2 does not show a picture (the box remains blank).

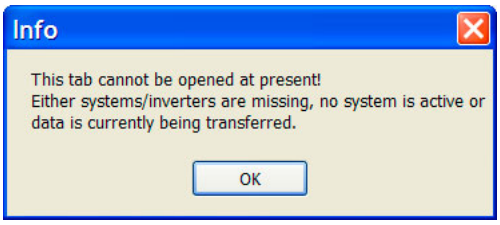
Note: To *replace* info.jpg, you may need administrator rights.

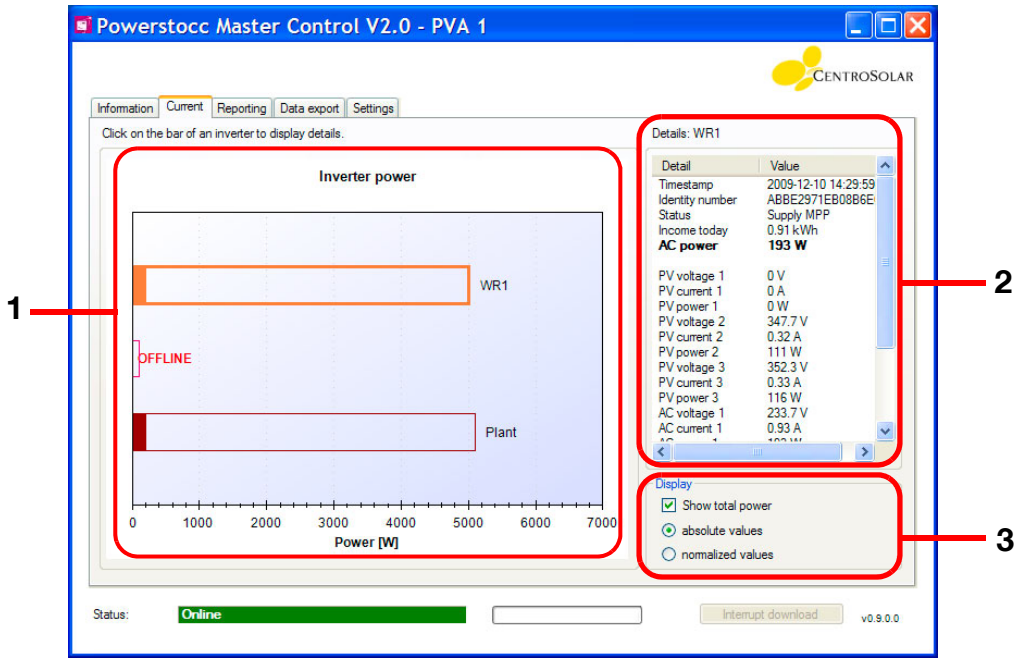
10 Displaying the current values

The **Current** tab shows the current power output of the active plant as a bar chart. There is a bar for the entire plant and another one for each installed inverter.

The displayed values are constantly updated as long as there is a connection to the plant (**status: online**). If there is no connection (**status: offline**), the display remains blank.

Note: The **Current** tab can only be displayed if at least one plant with inverters has been created AND no data transfer is currently taking place (**status: downloading data**).
Otherwise the following message appears:


Info
This tab cannot be opened at present!
Either systems/inverters are missing, no system is active or data is currently being transferred.
OK



1 *Diagram with bars for each inverter and the whole plant. Click a bar to see detailed values in (**2**). The coloured section of the bar shows the current value. The whole bar, including the non-coloured section, shows the maximum value attained so far.*

2 *The detailed values for the selected bar are displayed here.*

3 *Presentation: if you disable the "Show total power" option, the diagram will not display a bar for the entire system. You can also select whether the current power is displayed in watts (absolute values) or as a percentage of the maximum possible total power (standardised values). section 7.9 on page 13 describes how to set the total power.*

What next?

You can change the view of the diagram currently shown (see section 13.1 on page 23) or save the diagram as an image (see section 13.2 on page 23).

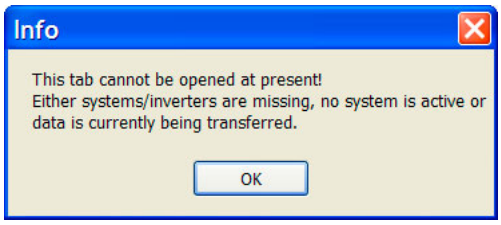
Tip: To see all the detailed values in *(**2**)* at a glance and avoid having to use the scroll bar, drag the corner of the program window to enlarge it.

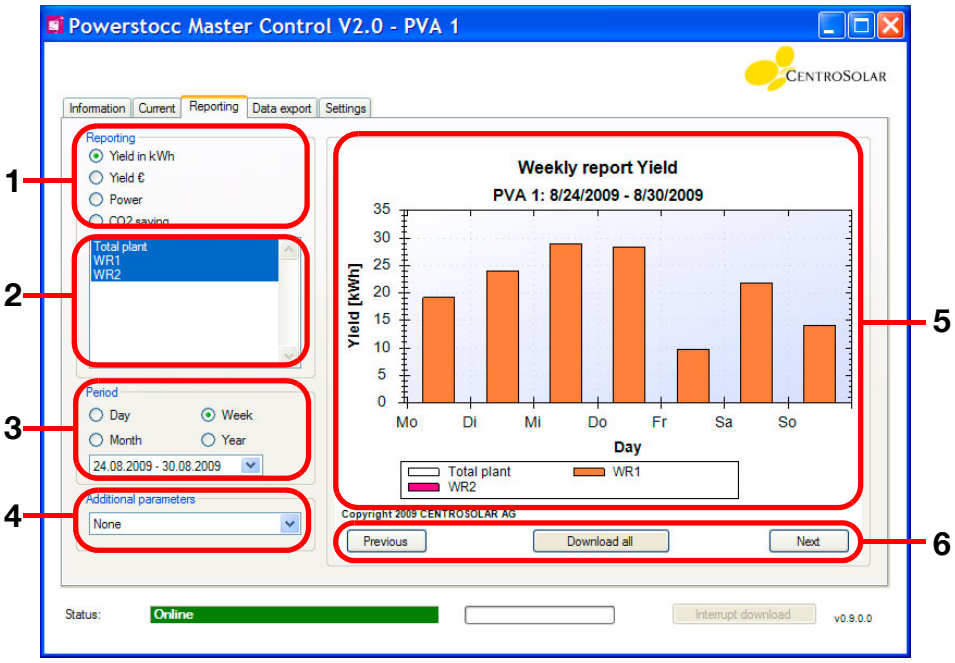
If your plant contains a large number of inverters (more than 20 for instance), the diagram may be confusing. In this case, you could create multiple plants in PMC2 and distribute the inverters among them.

11 Evaluating log data

On the **Reporting** tab, you can view the yield, the power and the calculated CO_2 savings of the plant during a particular period in the form of a bar chart.

Note: The **Reporting** tab can only be displayed if at least one plant with inverters has been created AND no data transfer is currently taking place (**status: downloading data**). Otherwise the following message appears:


Info
This tab cannot be opened at present!
Either systems/inverters are missing, no system is active or data is currently being transferred.
OK



1 *Reporting: Select the value to be evaluated here – yield, reimbursement, power or CO_2 saving.*

2 *Select the inverters whose data you want to see in the diagram here. Click an entry to select it or unselect it. To see the data from all inverters together, select the total plant.*

3 *Period: Select the period which the diagram will display here.*

4 *Additional parameters: Here you can also select a sensor whose readings you want to see in the diagram. If this box is disabled, no sensors are configured or you have selected a month or a year as the period.*

5 *Diagram: This is automatically updated when you change the reporting parameters. If you move your mouse over a bar, detailed information is shown in a pop-up box.*

6 *Click the Previous and Next buttons to see the previous and following reporting periods.*
Click the Download All button to download all the log data from the inverters; the display is updated.
You should always do this before exporting data so that the export file contains the latest data.

Example

You want to know how much energy your plant produced on each day of the past week.

1. For the reporting value (*1*), select **Energy yield in kWh**.
2. Select the entry **Total plant** and click to unselect the inverters.
3. Select the period (*3*) **Week** and select a day in the past week from the calendar.
4. Select **None** for the additional parameters.

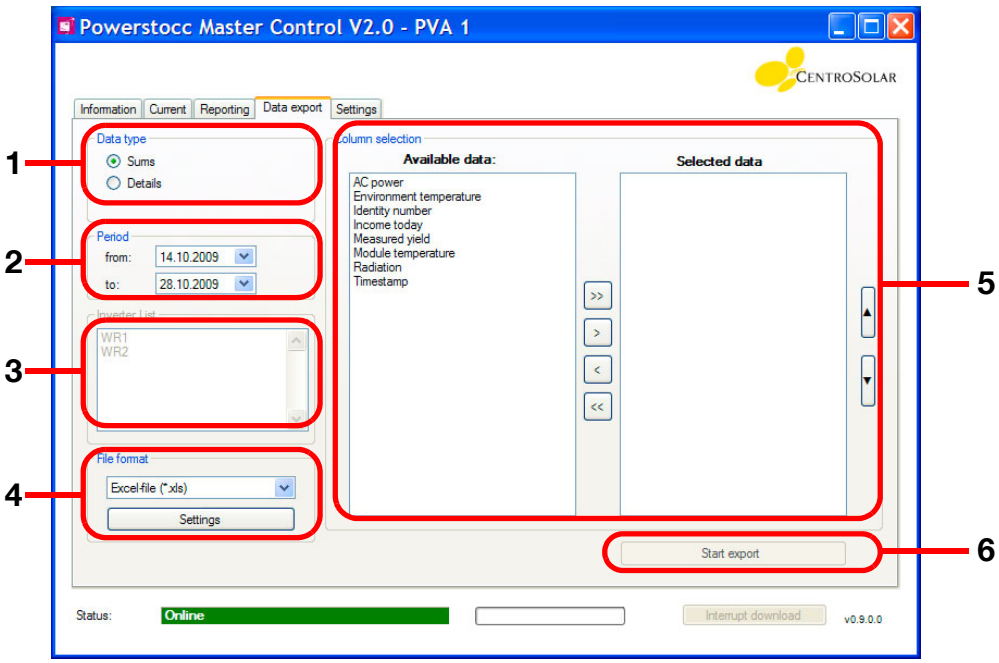
   ➙ The diagram is displayed as you wanted.

What next?

You can change the view of the diagram currently shown (see section 13.1 on page 23) or save the diagram as an image (see section 13.2 on page 23).

12 Exporting log data

On the **Data export** tab, you can export (i.e. save in a file) the log data of individual inverters or all of them. You might want to do this in order to import the data in another program.



1 *Data type: If you select Sums, you can only select data in (**5**) which refers to the entire plant.*
*If you select Details, you can only select data which refers to the inverters selected in (**3**).*

2 *Period: Select the period for the data which you want to export here.*

3 *Inverter list: If there are multiple inverters, you can select the ones whose data you want to export.*
If Sums is selected as the data type, the inverters are greyed out (i.e. you cannot select them).

4 *File format: Select the file format in which you want to export the data. You can choose between Microsoft Excel, XML and Text/CSV. If you click Settings, you can specify more details.*

5 *Column selection: The available data is shown on the left, while the right column shows the data that has been selected for exporting. To move an item from the left column to the right column or back, highlight it and click* > *or* <. *To move all the entries, click* >> *or* <<.
Click ▲ *or* ▼ *to change the order of the selected data in the column.*

6 *Start export: Click here to start the export of data.*
The button is not enabled unless there is data in the right-hand column.

Example

You want to save the AC power of the entire plant for the past month in an Excel file.

1. For the data type (*1*), select **Sums**.
2. For the period (*2*), select the first and last day of the past month.
3. For the file format (*4*), select **Excel file**.
   When you click **Settings**, a window appears where you can define additional export settings.
4. In the column selection (*5*), highlight the entry **AC power** and click >.
5. Click **Start export**.
   ➙ The following window appears:

   The file will be generated in the Excel 2003 format. The file cannot be opened in older versions of Excel.
6. Click **Yes** to continue. If you click **No**, the process is stopped.
   ➙ A “Save As” window appears.
   Select the location and file name, then click **Save**.

12 Exporting log data

➙ PMC2 exports the data. If the export is successful, the following window appears:

13 Other functions

13.1 Adjusting the diagram size

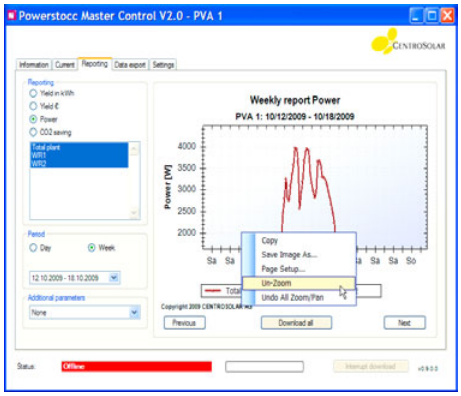
You can enlarge the diagrams on the **Current** and **Reporting** tabs by dragging the corners of the program window to make it bigger.

You can also zoom in on an area of a diagram.

1. Hold down your left mouse button and drag a rectangle around the area you want to zoom in on.

➞ The selected area is enlarged.

To zoom out again, right-click on the diagram and select **Un-zoom** from the context menu.



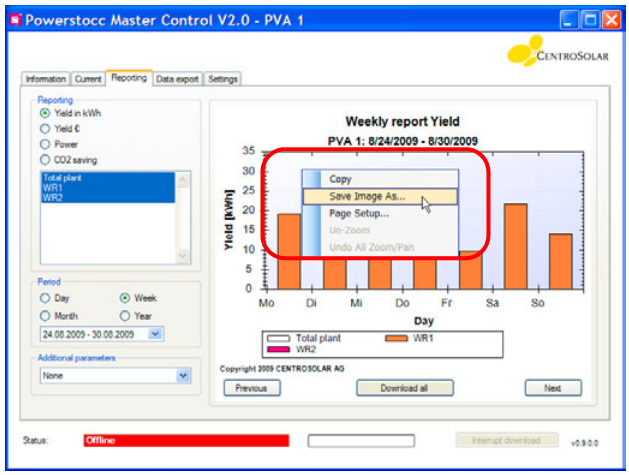
To zoom right out again and return the diagram to the default size, right-click on the diagram and select **Undo all zoom/pan** from the context menu.

13.2 Saving a diagram

You can save the diagrams on the **Current** and **Reporting** tabs as images. The following file formats are available: EMF, PNG, GIF, JPEG, TIFF, BMP.

1. Right-click on the diagram.

   ➞ A context menu appears.



2. Click **Save image as…** in the context menu.

   ➞ A “Save As” window appears. Select the location, file name and file type, then click **Save**.

Note: If you select **Copy** in the context menu, the diagram is copied to the Windows clipboard.

13.3 Changing the background of a diagram

On the **Reporting** tab, there is a graphic image in the background of the **Yield €** and **CO_2 saving** diagrams. This is either the euro.jpg or ambience.jpg file in the \img subfolder of the PMC2 installation folder.

You can replace these files with other ones and thus change background images for the diagrams.

If you rename or delete the files, the same default background will be displayed as for the **Yield in kWh** and **Power** diagrams.

Note: You need administrator rights to make these changes.

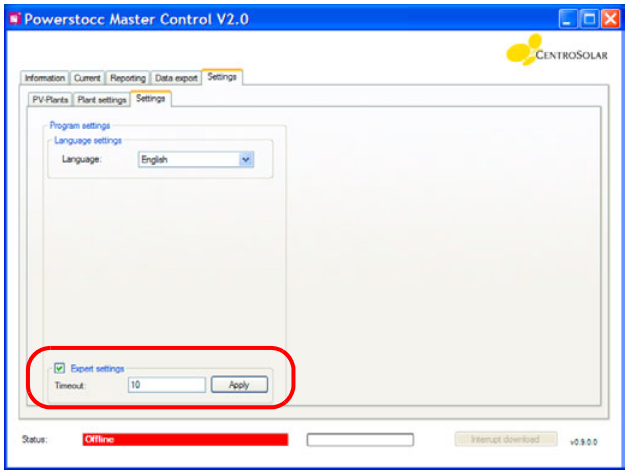
13.4 Setting the timeout

If no connection can be made to the plant or if the connection is frequently lost, the timeout may be set too short. In this case, increase the timeout.

The timeout specifies how long PMC2 attempts to connect to the plant. If no connection can be made in this time, PMC2 stops the connection attempt.

The default timeout is 10 seconds. We recommend only increasing the timeout in small increments (5 seconds) and then starting a new connection attempt.

1. Go to the **Settings | Basic settings** tab.
2. Select the **Expert settings** checkbox and enter a new value in the Timeout field. Values between 3 and 60 are allowed.

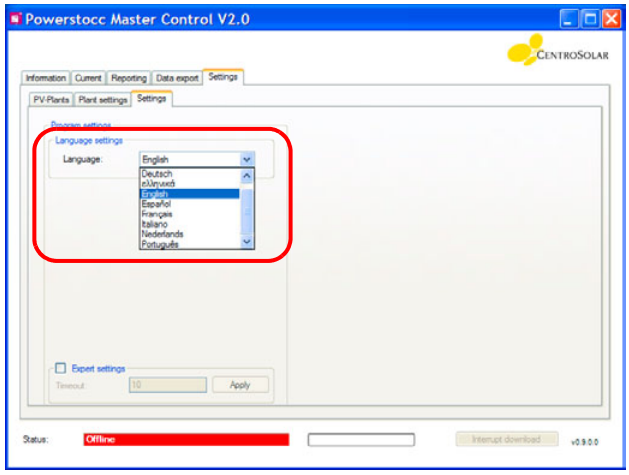


3. Click **Apply** to save the settings.

13.5 Setting the language

PMC2 selects the language of the software interface according to the language setting of the operating system. You can change PMC2 to another language at any time. The selected setting is retained even after the software is restarted.

1. Go to the **Settings | Basic settings** tab.
2. Select the language you want from the list.



➞ The setting is applied immediately and all text labels appear in the selected language.

14 Troubleshooting

Problem	Cause	Remedy
PMC2 cannot connect to the plant.	The inverter is out of service.	Switch in the inverter (see the installation and operating instructions).
	The connection is interrupted, for example due to a defective cable or loose plug.	Check that the cables are in working order and that the plugs are properly connected.
	Communication is prevented by a firewall.	Change the firewall settings.
	Communication is prevented by a proxy server.	The system does not support communication via a proxy server.
	An incorrect IP address or URL and/or an incorrect port number has been entered in the inverter settings.	Check the settings (see section 7.7 on page 12).
Online data is not available.	Communication with one or more inverters in the plant is disrupted.	Make several attempts to connect to the plant. Check the communication chain for faults (PC, wiring, router, DSL connection, availability, provider etc.).
The inverter cannot be contacted by name or serial number.	The NetBIOS name resolution is probably not working.	Check whether the inverter can be contacted using the IP address to exclude other causes. Activate NetBIOS.
The inverter name and/or the serial number cannot be identified.		
Data downloading is slow.		Use Inverter-Link to speed up data transfer.

Table 5: *Troubleshooting*

15 Glossary

EEG – The German law which promotes renewable energy sources, the “Erneuerbare-Energien-Gesetz (EEG)”, governs among other things the minimum reimbursement for photovoltaic electricity supplied to the grid.

Firewall – A firewall is a program which monitors data traffic. It is usually used to protect networks and network users from malevolent software.

IP address – The address assigned to a device in an IP network, with which it can be contacted.

kW, kWh – The kilowatt (kW) is the unit of electrical power. The kilowatt hour (kWh) is the unit of electrical work done in an hour.

NetBIOS – Abbreviation for Network Basic Input/Output System. Among other things, NetBIOS allows an IP address (e.g. 192.168.1.51) to be assigned a name (e.g. myinverter).
For instructions on assigning a name to an inverter, see the installation and operating manual.

.NET-Framework – .NET (pronounced: dotnet) is a software platform developed by Microsoft.

Proxy server – A computer in a network which receives requests from users and forwards them to other users. In other words, the network users do not communicate with each other directly.

URL – The abbreviation for “Uniform Resource Locator”. A URL might be an address where your inverter can be contacted on the internet, for example “http://wechselrichter.example.net/”.

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